Lessons Learned from Implementation of HPV Vaccine

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Talk Outline

- Disinhibition/Risk-compensation
- Application to HPV vaccination
- Evidence?
- Other behaviors
- Summary & recommendations

Disinhibition/Risk-Compensation:

Theory & Background

Risk-Compensation/Disinhibition Theory Suggests:

- Inherent set-point that determines willingness to take risks
- Interventions that reduce risk will result in persons increasing their risk-taking behavior to maintain their set-point
- Implies a universal trait that applies to all persons all of the time

Disinhibition/Risk Compensation:

Application to HPV vaccination

Two Major Issues Discussed

- Sexual disinhibition
  - HPV vaccination will be seen as protection against sexually transmitted infection in general
  - HPV vaccination will be seen as permission to engage in unsafe sexual behaviors
    - Earlier initiation of sex
    - Decreased use of condoms
    - More sexual partners
- Reduced participation in cervical cancer screening
  - Getting vaccinated will reduce participation in Pap testing

Is there evidence for disinhibition?

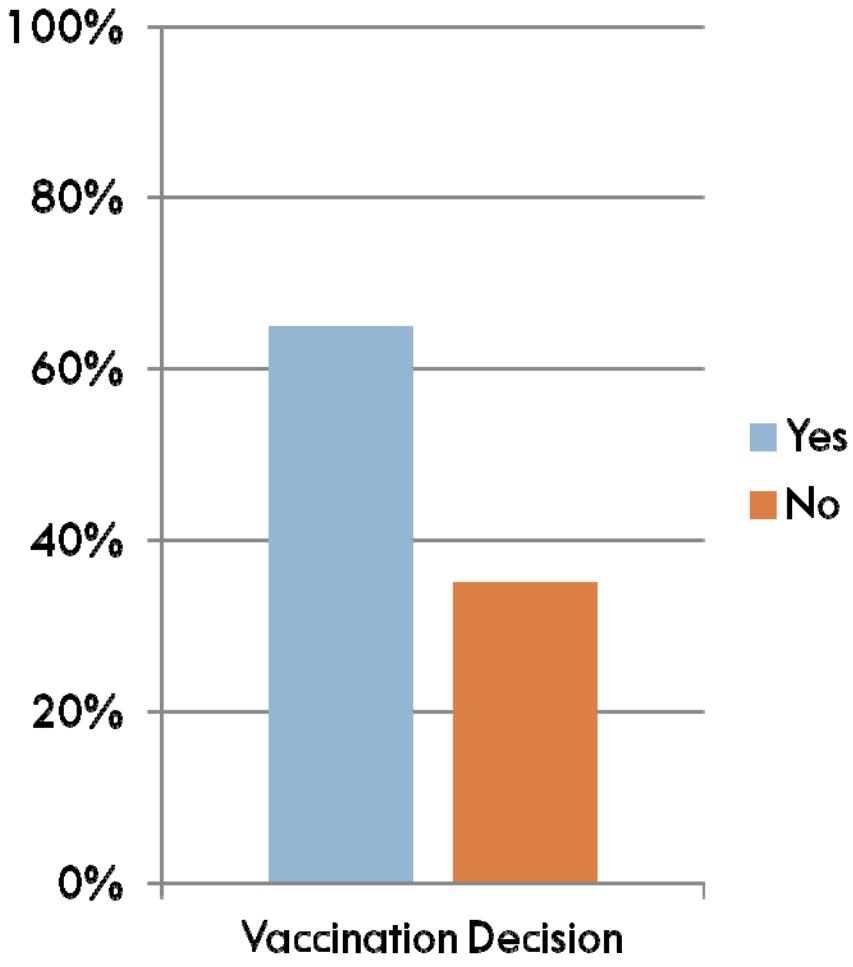
Parental concern*

- Correlation with HPV vaccine acceptability
  - Worries about sexual disinhibition sometimes associated with opposition to HPV vaccination
- But, are many parents concerned about disinhibition?
  - Few parents actually express concerns about disinhibition
  - Primary reasons for non-vaccination:
    - Physician did not recommend HPV vaccination
    - Worries about vaccine safety
    - Concerns that HPV vaccine is too new

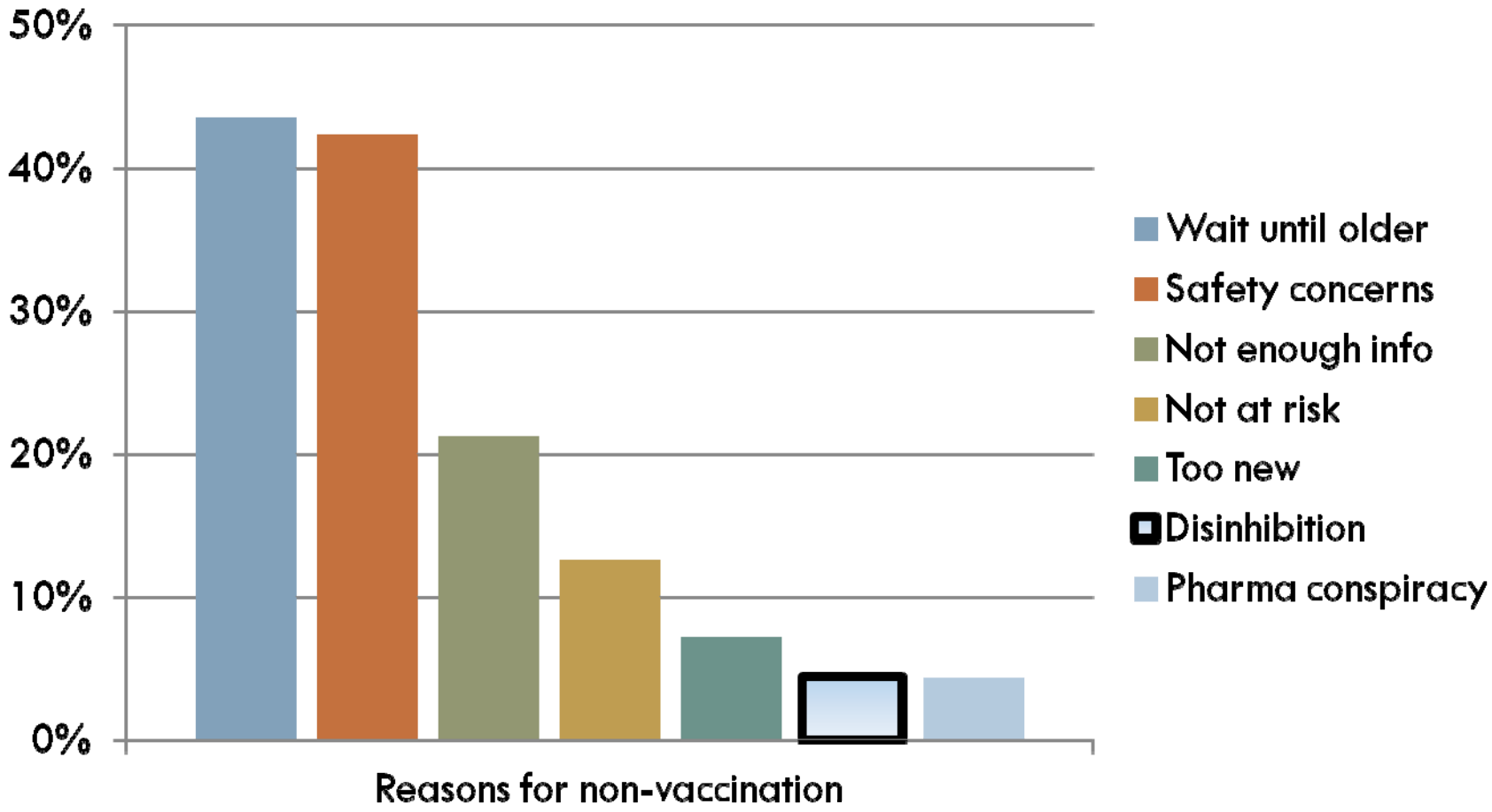
*Trim et al. *Obstet Gynecol Int.* 2012.
Zimet et al. *Ann Rev Med*. 2008
Brewer & Fazekas. *Prev Med*. 2007.

Example (Ogilvie et al. PLoS Med 2010)

- Nearly 2,000 parents surveyed
- British Columbia – School-based HPV vaccination
  - 1,289 (65%) - Daughters received 1st dose
  - 697 (35%) - Declined to have daughters vaccinated
- Parents who declined were asked to indicate reasons for this decision



Parental reasons for non-vaccination*



*Ogilvie et al. *PLoS Med* 2010

Is there evidence for disinhibition?

Sexual behavior

- Liddon et al. *Am J Prev Med* 2012.
  - 2007-2008 national survey of over 1,200 women 15-24 yrs old
  - No association of vaccination with:
    - Initiation of sex
    - Receipt of sexual/reproductive health care
  - Sexually active women who had been vaccinated reported more consistent condom use than those who were no vaccinated
  - Findings limited by the cross-sectional design

Is there evidence for disinhibition?

Sexual behavior

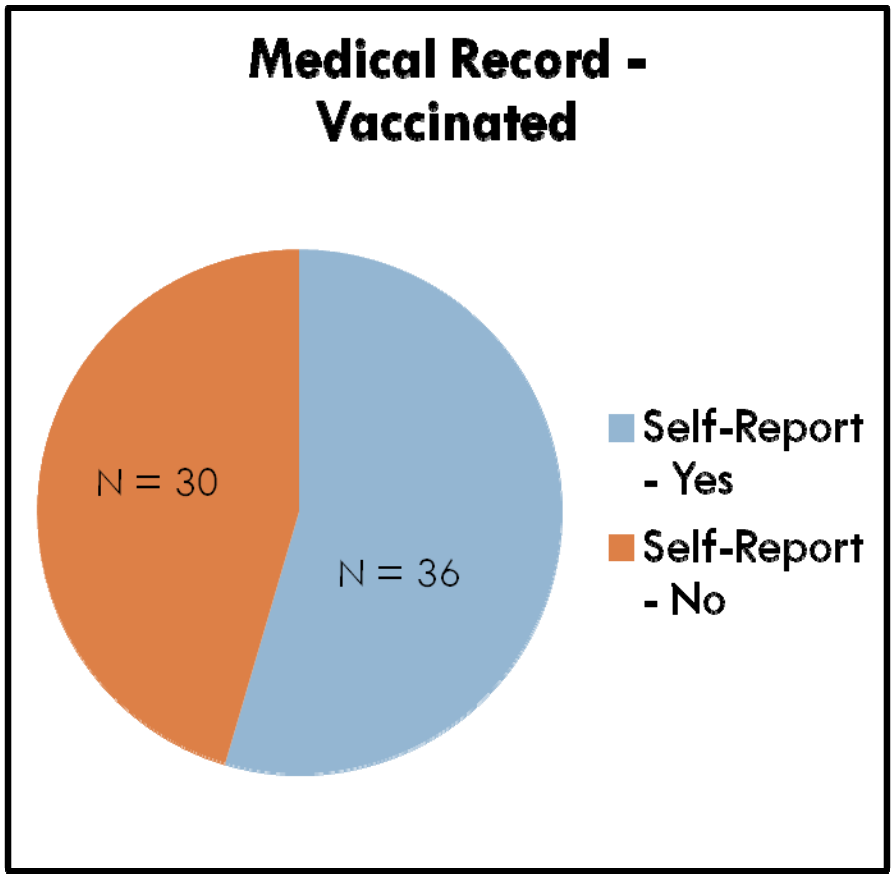
- Mullins et al. *Arch Ped Adolesc Med* 2012.
  - 339 women 13-21 yrs old
  - Surveyed after receipt of 1st vaccine dose
  - 23.6% perceived themselves to be at less risk for STIs other than HPV
  - 96.2% endorsed the need to continue to practice safe sex behaviors
    - Those who didn't had less knowledge & less mother-daughter communication about HPV vaccine
  - Findings limited by cross-sectional design

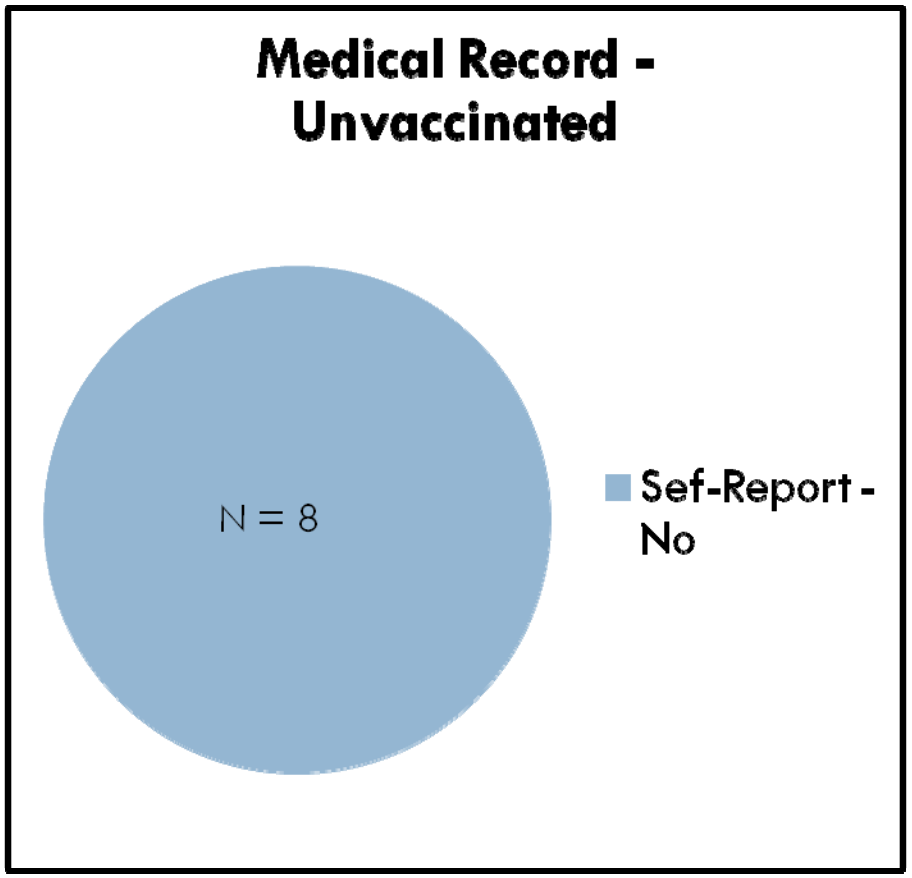
Is there evidence for disinhibition?

Sexual behavior

- Stupiansky et al. *J Adolesc Health* 2012.
- Cummings et al. (under review)
  - 75 female adolescents, 14-17 yrs old
  - Urban Indianapolis clinics
  - Self-reported HPV vaccination status compared to medical records
  - STI rates & sexual behaviors compared to matched group of adolescents from pre-licensure period

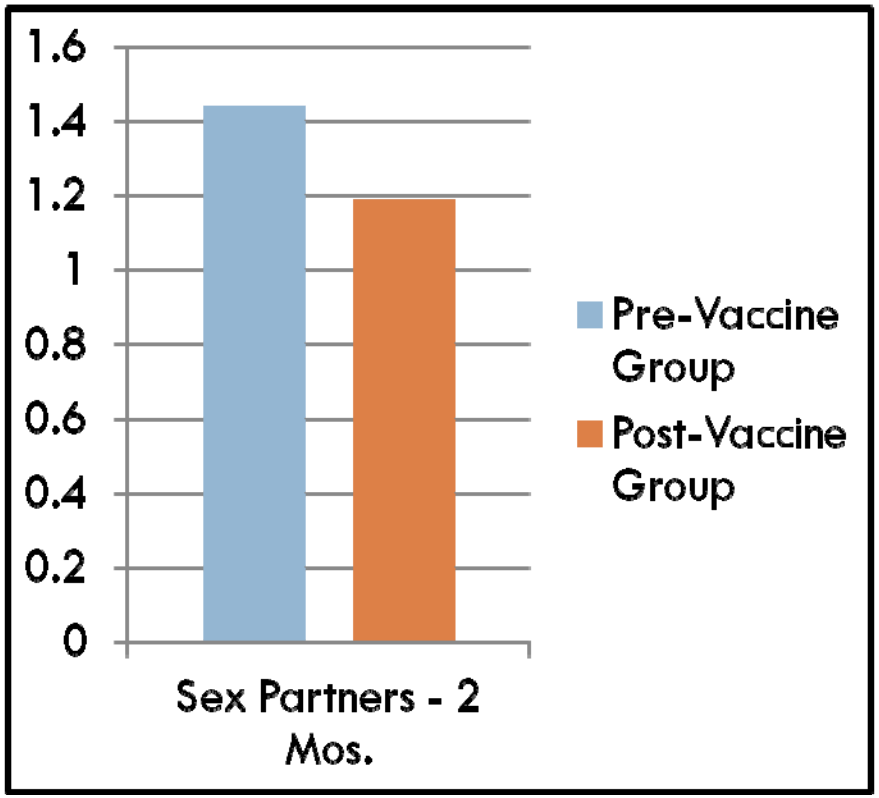
Self-Report vs. Medical Record

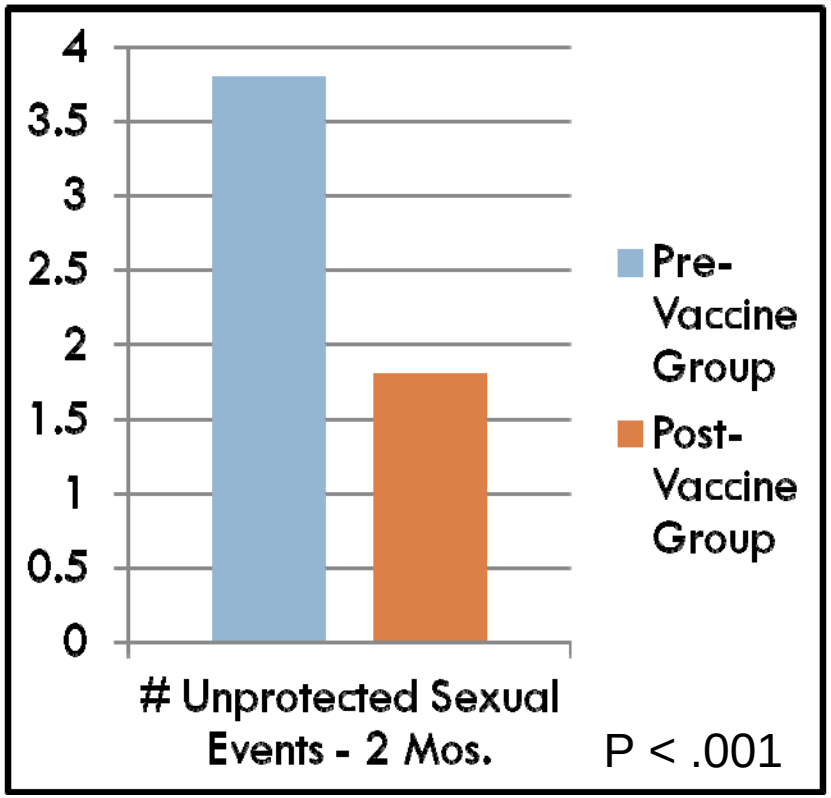




45% of those vaccinated did not remember. How could they disinhibit sexually based on an event for which they have no memory?

Pre-Vaccine vs. Post-Vaccine





Evidence for disinhibition: Pap testing

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Evidence for disinhibition:
Other research on sexual behavior

- Empirical evidence is mixed
- Review of condom promotion programs accompanied by mathematical modeling:*
  - Some risk compensation may occur
  - **Generally does not neutralize the beneficial effects of increased condom use stimulated by the programs**
  - Which means the condom promotion programs increase protection and therefore do not increase risk for infection from STI/HIV

* Pinkerton SD. *Risk Analysis* 2001;21:727-736.

Protective equipment & childhood injuries*

- 394 children 8 – 18 yrs old
- Had injury while participating in an activity that could have involved the use of protective equipment (e.g., bicycle helmet)
- Both users and nonusers of protective equipment
- Researchers found no evidence that use of protective equipment led to:
  - Greater risk-taking behavior
  - Greater severity of injury

*Pless et al. *Arch Pediatr Adolesc Med* 2006.

Disinhibition/Risk Compensation:

Other domains

- Does requirement for seat belt use lead to reckless driving?
- Does the use of ski helmets reduce head injuries?
- Does the use of bicycle helmets lead car drivers to drive more closely to bicyclists?
- Do anti-lock breaks lead drivers to brake later?

Research evidence both for and against these propositions.

The research is very difficult to carry out so that the results are clear and conclusive

Summary

- Although concerns about sexual disinhibition predict opposition to vaccination, few parents express such concerns
- Parents rarely mention decreased Pap testing as a worry
- No evidence for sexual disinhibition after HPV vaccination
- No studies yet on effect on Pap testing

Summary

- Risk-compensation clearly not universal & inevitable and likely dependent on:
  - The prevention strategy (e.g., vaccine, helmets, flossing)
  - The target of the strategy (e.g., HPV, HIV, Sports injuries)
  - Individual characteristics (e.g., impulsive decision-making)
  - The larger social context (e.g., romantic relationship, family)
- Increased "risk behavior" may not lead to increase in adverse outcome

Recommendations

- The question should not be: To vaccinate or not to vaccinate
- Ethically questionable to withhold vaccine because of unproven fears about disinhibition/risk compensation
- Research is important
- Focus should be on how to deliver vaccine most effectively and how to best communicate the benefits and possible risks associated with HPV vaccination